SPECIFICATION AMENDMENTS

Please replace paragraphs number [0012]-[0013] on page 4, with the following rewritten paragraphs:

[0012] FIG. 1 is a serum sodium calibration curve. The calibration curve was generated using the methods disclosed in the Example 1. Briefly, the calibration curve was constructed by ~~plottin~~ plotting the ΔA values of the standards against the corresponding sodium concentration.

[0013] FIG. 2 is a serum lithium calibration curve. The calibration curve was generated using the methods disclosed in the Example 2. Briefly, the calibration curve was constructed by ~~plottin~~ plotting the ΔA values of the standards against the corresponding lithium concentration.

Please replace paragraph number [00112] on pages 26-27, with the following rewritten paragraph:

[00112] **Assay Principle.** Sodium was determined spectrophotometrically through a kinetic coupling assay system involving the chimeric 3'(2'),5'-bisphosphate nucleotidase (as described in Section B) whose activity was sensitive to sodium concentration (IC_{50}=20mM). Through enzymatic coupling, the phosphatase substrate, adenosine 3',5'-bisphosphate (PAP) was converted to hypoxanthine by a series of enzymatic reactions to generate uric acid and hydrogen peroxide (H_2O_2). H_2O_2 generated reacts with N-Ethyl-N-(2-hydroxy-3-sulfopropyl)-3-m-toluidine (EHSPT) and 4-aminoantipyrine (4-AA) in the presence of peroxidase (POD) to form a quinone dye which had maximal absorbance at 556nm. The rate of the quinine dye formation was inversely proportion to the concentration of ~~lithium~~ sodium in serum samples. The enzymatic coupling reaction scheme is shown below in Table 3:

Please replace Table 6 on page 30, with the following rewritten Table:

TABLE 6

$PAP + H_2O \xrightarrow{\text{Phosphatase}} AMP + Pi$
$AMP \xrightarrow{\text{5'-Nucleotidase/ADA deaminase/PNP}} \text{Hypoxanthine} + Pi + NH_3 + \text{R-1-P}$
$\text{Hypoxanthine} + 2H_2O + 2O_2 \xrightarrow{\text{Xanthine Oxidase}} \text{Uric Acid} + 2H_2O_2$
$H_2O_2 + \text{4-AA} + \text{EHSPT} \xrightarrow{\text{Peroxidase}} 4H_2O + \text{Quinone dye}$ (λ max 556nm)

PAP: 3'-phophoadenosine 5'-phosphate (adenosine 3',5'-bisphosphate)
AMP: Adenosine-5'-phosphate
PNP: Purine Nucleoside Phosphorylase
4-AA: 4-Aminoantipyrine
EHSPT: N-Ethyl-N-(2-Hydroxy-3-Sulfopropyl)-m-~~Toluidin~~Toluidine

Please replace paragraph [0040] on pages 10-11, with the following rewritten paragraph:

[0040] Any suitable 3',5' bisphosphate nucleotidase can be used. In one example, the 3',5' bisphosphate nucleotidease is of *Saccharomyces cerevisaie* origin (*See e.g.*, Murguía et al., *J. Biol. Chem.*, 271(46):29029-33 (1996)). This nucleotidase is also known as the HAL2 nucleotidase. Moreover, any suitable 3',5' bisphosphate nucleotidase catalyzing the reaction defined in Section B can be used in the present compositions and methods. The enzyme useful in the present compositions and methods is not limited those enzymes having only 3'(2'),5'-bisphosphate nucleotidase activity. For example, the enzyme may have dual enzymatic activity, *e.g.*, Tol-1. Homologues of the HAL2 phosphatase are also contemplated. Useful enzymes capable of catalyzing the above reaction include, but are not limited to BPntase (*see, e.g.*, Spiegelberg et al., *J. Biol. Chem.* 274(19):13619-28 (1999)), HsPIP, RnPIP (*see, e.g.*, López-Coronado, et al., *J. Biol. Chem.* 274(23):16034-39 (1999), and Tol-1 (*see, e.g.*, ~~Amoto~~ Miyamoto, et al., *J. Bacteriol.* 182(13):3619-25 (2000)). Other useful 3'(2'),5'-bisphosphate

nucleotidases, *e.g.*, 3',5' bisphosphate nucleotidases are disclosed in Peng et al., *J. Biol. Chem.* 270(49):29105-10 (1995), Dichtl et al., *EMBO J.*, 16(23):7184-95 ~~(1997),Gil-Mascarell~~ (1997), Gil-Mascarell et al., *The Plant J.* 17(4):373-83 (1999)~~, can also be used~~. A functional fragment or a derivative of a 3'(2'),5'-bisphosphate nucleotidase that still substantially retain its enzymatic activity catalyzing the dephosphorylation of adenosine 3',5'-bisphosphate to yield corresponding adenosine 5'-phosphate (AMP) and P_i can also be used.

Please replace paragraph [0069] on page 18, with the following rewritten paragraph:

[0069] H_2O_2 formation can be ~~assessed any~~ assessed by any suitable means. In one embodiment, the H_2O_2 formation is assessed by a peroxidase and Trinder reaction. Any suitable peroxidase can be used. More preferably, a horseradish peroxidase is used. For example, the horseradish peroxidases with the following GenBank accession Nos. can be used: E01651; D90116 (prxC3 gene); D90115 (prxC2 gene); J05552 (Synthetic isoenzyme C(HRP-C)); S14268 (neutral); OPRHC (C1 precursor); S00627 (C1C precursor); JH0150 (C3 precursor); S00626 (C1B precursor); JH0149 (C2 precursor); CAA00083 (Armoracia rusticana); and AAA72223 (synthetic horseradish peroxidase isoenzyme C (HRP-C)). Any suitable Tinder reagent can be used herein. Hydrogen peroxide can quantitated by the quinone dye assay. *See, e.g.*, ~~Tamaokel~~ Tamaoku, et al., *Chem. Pharm. Bull.* 30: 2497 (1982); Shimojo et al., *Clin. Chem.* 35(9):1992-94 (1989). The amount of quinine dye formed is inversely related to the amount of sodium ions in the sample.